



Accounting for Self-Generating and Regenerating Assets – Meeting the Objectives

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AASB 1037, Self-generating and regenerating assets, Consistency, Comparability, Accounting standards

ABSTRACT

The introduction of AASB 1037 and the subsequent adoption of the international standard AASB 141 sought to achieve consistency and comparability in the financial practices adopted. This exploratory paper discusses whether this was achieved and at the same time highlights issues faced by firms involved in the application of a new accounting standard. Consistency in measurement methods adopted by firms was not achieved by prescribing accounting methods under AASB 1037. However, consistency was found within firms in the application of measurement methods over time. Comparability within firms across time has been achieved, though not necessarily between firms in the SGARA Industry.

1.0 Introduction

Over time a variety of accounting practices has been adopted in relation to self-generating and regenerating assets (SGARAs) raising questions about the comparability and consistency of financial reporting. In response to this a decision was made to develop an accounting standard to formalise accounting regulations in Australia. The standard developed was AASB 1037 - Self Generating and Regenerating Assets. Formal measurement and disclosure reporting requirements were introduced into the Australian reporting environment from 30 June 2001. Australia led the way with the development of a standard of this type and remained the only country to have developed such a standard prior to the introduction of the international standard equivalent, AASB 141 – Agriculture from 01 January 2005.

This study seeks to address whether or not the regulators were able to reduce diversity of accounting practice, and bring about greater comparability and consistency through the adoption of AASB 1037, and subsequent adoption of AASB 141. A number of questions were posed:

- What measurement methods were utilised to value SGARAs under AASB 1037?
- Have the measurement methods used to value SGARAs been applied consistently over time?
- Does the type of SGARA determine the measurement method adopted in applying AASB 1037?
- Does the information system used by respondent firms determine the measurement method adopted in applying AASB 1037?
- What measurement methods will be utilised to value biological assets (SGARAs) under the international standard equivalent, AASB 141 from 01 January 2005?

In the next section issues surrounding the introduction of AASB 1037 are discussed, followed by a response to each of the questions identified.

2.0 Development of an Accounting Standard

Prior to the introduction of formal accounting regulations, there was a lack of guidance provided by accounting regulators and the accounting profession in regard to accounting for SGARAs in Australia. Lack of guidance had been perceived to have resulted in a wide diversity of practice with respect to the recognition, disclosure and measurement of information about SGARAs in general purpose financial reports (Roberts *et al.* 1995). Since it was perceived that this diversity led to a lack of comparability and consistency in financial reporting there was wide recognition that this situation was not desirable.

To overcome this lack of guidance, in 1995, the Australian Accounting Standards Board and the Public Sector Accounting Standards Board (the Boards) commenced the due process of developing an accounting standard that addressed these issues with the release of

Discussion Paper 23 (DP 23). DP 23 was followed by Exposure Draft 83 (ED 83) in August 1997 and then the standard, AASB 1037 in August 1998. The subsequent standard, AASB 1037 'Self Generating and Regenerating Assets', was to be operative for reporting periods ending on or after 30 June 2000 but could be applied earlier. However, the Boards were advised prior to the operative date that some constituents were encountering practical implementation problems in adopting AASB 1037. Firms were having problems understanding the new rules and needed more time to determine how they were going to gather the necessary information required under the standard (Ravlic 2000). In July 1999, the Boards, in response to this advice, delayed the commencement date by one year to 30 June 2001.

What are Self-Generating and Regenerating Assets?

To determine the scope and applicability of AASB 1037, it is important to understand what the term 'self-generating and regenerating assets' means. Goyen and Roberts (1991) defined SGARAs as:

Non-human living assets which, due to inherent capacity for growth, production, procreation and degeneration, contain economic benefits and service potential which are subject to continual variations during their lifetime.

This definition was refined in DP 23 as a 'non-human-related living asset'. No justification was provided for this refinement. With the use of a broad and encompassing definition this ensured that many firms, who may not have been captured under previously proposed definitions, would be required to comply with any future accounting standard requirement. It was argued that this wide definition would help to bring about comparability and consistency between firms across different industries.

The DP 23 definition was later adopted in ED 83 with the exception that the wording 'related' was removed from the definition. The phrase 'non-human' was considered necessary to distinguish plants and animals from human resources whilst the phrase 'living asset' was intended to apply to assets, regardless of the length of production cycle, or how they were created (ED 83 paragraph 9.1.1 - 9.1.2 1998).

The definition adopted under AASB 1037 retained the same definition and exclusions proposed under ED 83, that is 'non-human living asset'. By adopting a broad definition in AASB 1037, the Boards ensured that the standard was not selective in relation to particular industries or groups.

Measurement of Self-Generating and Regenerating Assets

AASB 1037 prescribes that SGARA assets are to be measured at net market value (AASB 1037 paragraph 4.1 1998). The net market value (NMV) of a SGARA is defined as the amount, which could be expected to be received from the disposal of the SGARA in an active and liquid market after deducting costs expected to be incurred in realising the proceeds of such a disposal (AASB 1037 paragraph 10.1 1998). Where no active and liquid market for a SGARA exists, AASB 1037 requires the best indicator of the net amount which could be received from the disposal of the SGARA in an active and liquid market to be used to measure the SGARA, taking into account all relevant information.

How is the best price indicator of that asset determined? The best indicator is considered to be the measure that represents the best balance between the often conflicting qualitative characteristics of relevance and reliability. To determine this often requires the exercise of judgement, having regard to the circumstances (AASB 1037 paragraph 5.3.2 1998).

There are a number of measurement methods that could be used as the best indicator. They include:

- (a) The most recent net market price of the same or similar assets;
- (b) The net market value of related assets;
- (c) The net present value of cash flows expected to be generated by the SGARAs discounted at a current market-determined rate, which reflects the risks associated with those assets;
- (d) Cost (AASB 1037 paragraph 5.3.2 (a) – (d) 1998).

A review of the available literature that has examined some of these issues is now presented.

3.0 Review of Literature

Pre AASB 1037 Implementation

Discussion and debate surrounded the development of the regulatory framework for SGARAs, not the least of which was the difficulty in valuing certain types of SGARAs (Ravlic 2000). For example, the vineyard industry argued that valuation of the crop was difficult since the crop was attached to the vine and formed a part of the land in which it lived. The vine itself had little value, and it was argued to be difficult to separate the value to be associated with the crop as distinct from the vine and then to identify a realistic net market value for the vine. Similar concerns were raised by Cummings (2000) but were more directed at different valuation techniques. For example, in determining the value of a vineyard, estimates for crop yields, market factors, useful life and discount rate needed to be made. Since these are estimates, subjectivity and volatility would enter into the calculations reducing the value of the information generated. It was also argued that volatility would result from the recognition of unrealised gains and losses and increase confusion in capital markets due to the subjectivity introduced into balance sheet figures (Cummings 2000, Reilly *et al.* 1999). Keys (1998), on the other hand, argued that it would be reasonable to expect that users of financial reports would read the financial reports in the context of the volatility inherent in the value of SGARAs. He also suggested that management should choose to appropriate an amount of profits to a reserve to indicate to shareholders the potentially undistributable nature of the profits.

A number of studies have examined measurement methods adopted by firms in measuring SGARA assets prior to the implementation of AASB 1037 and the implications that would flow from adoption of the standard. Herbohn *et al.* (1998) found that a variety of measurement methods and procedures were used in the forestry industry for reporting purposes (1991-1995). Roberts *et al.* (1995) in a 1990 survey of financial reporting practices (forestry, livestock and other) found considerable diversity in the methods used to value forestry and livestock. Herbohn and Herbohn (1999) examined the reactions of

forest managers to the proposed AASB 1037 regulations. The study found that the requirements under DP 23 would result in significant changes to existing practices if firms were to adopt current market value. In fact 45.5% of forest manager's surveyed would have to change existing practices to comply with the standard. Dowling and Godfrey (2001) examined the SGARA measurement methods utilised by Australian firms that undertook a main business activity that utilised SGARAs for the 1999 financial year. Despite the diverse range of industries sampled they found only four types of SGARAs were reported - grapevines, standing timber, livestock and crops. These firms used a variety of measurement methods with historical cost being the preferred method (60% of firms). Interestingly, fourteen of the thirty firms surveyed used more than one method of measurement and the least used measurement method was the net market value method (13.3%), the method required under AASB 1037.

Post AASB 1037 Implementation

Few studies have examined the post implementation effect of AASB 1037. Moodie (2000) examined financial reports and sought comment from three firms that had accounted for SGARAs on a voluntary basis in accordance with the standard's requirements prior to the formal implementation date. He found that there was acceptance of the standard by these early adopters. Hone *et al.* (2001) and Taggart (2000) examined the way in which AASB 1037 has been interpreted and applied in the case of Earth Sanctuaries Limited (ESL). In a controversial approach, ESL interpreted wildlife within their sanctuaries as SGARAs. Hone *et al.* (2001) in their examination concluded that the interpretation by ESL management of AASB 1037 may not have been in the best interests of the firm. They considered that the cost basis that this firm had chosen in valuing these types of assets was incorrect. It provided an unreliable measure of the firm's performance and it brought into question the relevance and reliability of the information communicated to external parties. Further, they questioned whether the profession needed to reassess the use of AASB 1037 in light of its application by ESL (Raar *et al.* 2002).

Booth and Walker (2003) examined the SGARA measurement methods utilised by five major and two smaller listed wine producers in Australia. By conducting a financial statement survey, they found that measurement methods utilised by these firms were the net present value and the director's valuation method. They found that very few disclosures were provided by these firms, in that any significant assumptions underlying the calculations were not provided.

Milne (2004) in a field study interviewed forty-five preparers, users, auditors and the AASB. Milne found that there was widespread disdain for the accounting standard amongst corporate and accounting firms, in that the theoretical foundations and analytical bases of the standard were not believed to be sound and the qualitative characteristics of relevance, understandability, reliability and comparability were not met.

Herbohn (2006) conducted a review of the financial statements of all listed Australian companies with SGARA assets for the first four years of compliance with AASB 1037. It was found that accounting for SGARAs had a significant effect on the reported net profits of firms complying with AASB 1037. Management adopted a variety of measurement methods, with net present value being the method preferred.

4.0 Research Method

To test the five propositions that were developed in this study, a mail survey was adopted. The survey was sent to firms within the two main industry groups (winery and grapevine (wine industry) and forestry and timber (forestry industry)) within Australia that were expected to have been significantly affected by the introduction of an accounting standard for SGARAs. Firms in these industries were targeted in two stages.

In stage one, firms were targeted that were required to comply with the requirements of AASB 1037/ AAS 35. Listed Australian public companies are required to comply with AASB standards. Information was sought from the Australian Stock Exchange (ASX) web-site as this contains all Australian listed public companies. To identify relevant companies for this study, details of companies under the GICS industry grouping of 'Food, Beverage and Tobacco' and 'Materials' were obtained. This provided a listing of 55 and 408 public companies respectively.

Each of these companies was then examined to determine their principal activity, as provided to the ASX. Those companies that were found to have a principal business activity of 'wine production' and/or 'forestry' were included in the sample selection. The forestry industry also includes a number of state public authorities which are required to comply with the AAS 35 requirements. These firms were also included in the sample selection. This provided a total population of 35 firms, split into 19 wine and 16 forestry companies.

In the second stage, firms within the two industries were targeted that were not required to comply with AASB 1037/AAS 35 requirements. AASB standards apply to listed Australian public companies whilst AAS standards apply to public entities. There are many firms within Australia that do not fit into either of these two categories, for example, partnerships, sole traders and family trusts. Whilst these firms are not required to comply with the standards, many firms in Australia still do due to the professional obligations imposed on accountants in preparing the financial statements for these firms. A listing of all Australian business names involved in the forestry and wine growing industries was obtained from the Australia On Line CD_ROM (2003). The CD_ROM listed a total of 293 businesses for the forestry industry and 1832 businesses for the wine growing industry. Each of these business listings was then examined and businesses that were found not to be applicable to this study (e.g. consultants, firms that were listed more than once, firms that were already included in the sample) were removed. This provided a final listing of 234 firms in the forestry industry and 1489 firms in the wine industry. In adopting random sampling a total of 110 firms was selected.

These two groupings provided a total of one hundred and forty five firms. Surveys were then mailed out to these firms in February 2003. In seeking to enhance returns two follow-up mailings were undertaken at three weekly intervals. A final sample of 37 useable responses was received (twenty-three firms from the wine industry and fourteen firms from the forestry industry), equating to a useable response rate of 30.83%. This result was consistent with previous studies (for example Herbohn and Herbohn 1999).

Survey Questions

There were twenty-three questions in the survey. Two of the questions were open-ended and required written responses. The open-ended questions were designed to encourage self-expression. Two of the questions required a scaled response, six questions required a yes/no response, seven questions required a multiple choice response, four questions required the subjects to respond by using a key and two questions required a one word response.

Results Testing

Non-parametric tests were conducted on the mail survey results, with the main test being the chi-square goodness-of-fit test. The test was used to determine whether or not the actual results were distributed the way that they were expected by testing the ‘goodness-of-fit’ of the observed distribution with the expected distribution (Hair *et al.* 2003). In relation to this project, the tests examined whether a significant difference existed between the actual results in the mail survey and the results that were expected, as predicted from the propositions.

5.0 Results

This research targeted a number of questions. One of the key questions was to identify the measurement methods being utilised by respondents in accounting for SGARAs under AASB 1037. In this study it was expected that the usage of the net market value method would be minimal, due to the non existence of active and liquid markets or that firms simply prefer not to use this method of measurement (Dowling and Godfrey 2001).

Proposition 1: The net market value method will not be adopted to measure SGARAs.

Respondents that were required to comply with the SGARA standard held a total of twenty-nine SGARA assets. These were grapevines, timber and other. Of the twenty-nine, twenty-five SGARA assets were measured using one method of measurement and four SGARA assets were measured using more than one method. This group of four firms adopted sixteen measurement methods to value their SGARAs. Surprisingly one firm used a combination of five different measurement methods to value one SGARA. In total, this provided a total of forty-one measurement methods being utilised to value twenty-nine SGARA assets. The main method utilised was the net present value (44%) method (Table 1), followed by the net market value in an active and liquid market method (15%).

Table 1 Measurement Methods in Accounting for SGARAs

Measurement Method	Number	%
Net market value in an active and liquid market	6	14.63
Most recent net market value for same or similar assets	1	2.44
Net market value of related assets	4	9.76
Net present value of expected cash flows	18	43.90
Cost	5	12.20
Independent Valuation	4	9.76
Directors' Valuation	3	7.32
Total	41	100.00

A chi-square goodness of fit test was conducted to examine whether a significant difference existed between the measurement methods actually used and the measurement methods that were expected to be used by these respondents. It had been expected that the net market value method would not be utilised by respondents. The result provided a chi-square result of 25.625, significant at the 0.001 level. The result suggests that there is a significant difference between the expected number of firms applying the net market value and the actual number. Proposition 1 is found not to be supported as some firms had adopted the net market value method. For firms that did not utilise the net market value method, a common reason why not was that the information was not readily available. In looking at the group of firms not required to adopt AASB 1037, 64% preferred the cost method rather than net present value, as preferred by those firms required to implement AASB 1037.

Consistency over Time

It was anticipated that firms would have chosen a method that would be applied consistently over time. By applying the chosen measurement method(s) in a consistent manner, this would allow for comparability across firms to be achieved.

Proposition 2: Once chosen, the measurement method adopted by a firm will be consistently applied.

Whilst a variety of measurement methods were used by firms, it was found that each firm had applied their chosen method(s) of measurement consistently since implementation of AASB 1037. A total of 97% of all respondents indicated that they were applying the same method of measurement that had been applied since the standard was implemented. Separating this total into the two industries, this equated to 95.65% of respondents in the wine industry and 100% of respondents in the forestry industry. Proposition 2 is therefore

supported indicating that the selected measurement method is consistently applied within individual firms.

Type of SGARA

The next stage of analysis considered whether the SGARA type influenced the measurement methods adopted by firms to measure SGARAs. For example, under the SGARA type - livestock, a firm may hold two main categories - commercial breeding stock and trading stock. These may justifiably be measured using different methods as the objective of holding them is different, the first being to maintain the ongoing breeding program, while the second was to prepare stock for market. Dowling and Godfrey (2001) found this distinction in an examination of firms' measurement methods.

Proposition 3: The SGARA type will not affect the measurement method adopted to measure the SGARA asset.

There were five main SGARA categories identified from the survey respondents. For each of the five categories identified, analysis was then undertaken to determine what measurement methods were being utilised by these firms in measuring the SGARA assets. The results are shown in Table 2.

Table 2 SGARA Categories and Measurement Methods Adopted

Category of SGARAs Measurement Method	Grapes & Grapevines	Native Forest	Plantation	Other Timber	Other SGARAs -Orchards	Total
Net market value in an active and liquid market	6	-	3	-	1	10
Most recent net market value for same or similar assets	1	-	-	-	-	1
Net market value of related assets	3	-	2	-	-	5
Net present value of expected cash flows	8	2	8	2	2	22
Cost	10	-	4	-	1	15
Independent valuation	3	-	1	-	-	4
Directors' valuation	4	-	1	-	-	5
Total	35	2	19	2	4	62

Between industry groups within the sample there would appear to be some preference in measurement method between SGARA categories. The wine industry would appear to have a preference for cost (29%) as the measurement method, closely followed by net present value (23%) while the native forests and plantation timber industry has a preference for net present value (52%). There would appear to be some support for Proposition 3 in

that the winery industry has a preference for cost not evident in the timber industry in which only 17% of respondents identified this as a measurement method. Conversely the timber industry favours the use of net present value. Such differences may be reflective of the underlying nature of the asset.

Information System used by Firms

Further analysis was undertaken to determine whether the information system used by respondents determined the measurement methods employed to measure SGARAs. It was expected that for firms that had developed information systems capable of measuring reliable net market valuations, they would utilise the net market value method. For firms that had not developed such information systems, they would utilise measurement methods other than net market value. Therefore consistency was expected based on whether or not information systems had been developed by individual firms.

Proposition 4: The measurement method adopted for SGARAs will be dependent on the information system adopted by the firm.

A total of 64% of mail survey respondents that were currently applying AASB 1037 indicated that they had developed information systems capable of measuring net market value by the standard's implementation date. Of those respondents that had indicated that they had developed such systems, the main measurement method utilised by respondents was the net present value method. Twelve of the sixteen respondents (75%) had used the net present value method or a combination of methods including the net present value method to account for SGARAs. For those respondents that had not yet developed information systems, the main method utilised by five of the nine respondents (55.55%) was the net present value method or a combination of methods. Thus, approximately 20% more of the respondents that had developed information systems used the net present value method.

Chi-Square testing was conducted to determine if this difference in measurement methods was significant. In particular, analysis sought to uncover if there was a relationship between the usage of a particular measurement method and the development of an information system. The result provided a chi-square result of 1.001 which was not significant at the .05 level. Thus, the result does not provide support that a significant relationship exists between the employment of information systems and the usage of the net present value measurement method. Proposition 4 was not supported since the use of a particular measurement method did not appear to be related to the presence of a developed information system.

Measurement Methods under AASB 141

The final question considered what measurement methods would be utilised by firms in accounting for biological assets under AASB 141. From 01 January 2005, the international standard (IAS 41) equivalent AASB 141 effectively replaced the SGARA standard, AASB 1037, in Australia. Applicable entities are now required to meet the requirements of this international standard.

AASB 141 requires that firms utilise the active market method in accounting for biological assets. The active market method requires biological assets and agricultural produce harvested from an entity's biological assets to be measured at fair value less estimated point-of-sale costs (AASB 141 paragraph 12, 13 2003), except in the case where the fair value cannot be measured reliably. It was expected that firms would not utilise the active market method in applying this accounting standard (based on the same reasoning as that for the application of AASB 1037) but would use alternate methods.

Proposition 5: In applying AASB 141 firms will not apply the 'active market' approach to measurement.

At the time of the mail survey, of the total survey respondents, seventeen firms had considered what effect (if any) the international standard would have on the accounting treatment of their firm's biological assets. These seventeen firms held a total of twenty biological assets combining to a total of twenty-eight measurement methods being utilised to measure these assets.

As shown in Table 3, the method proposed by a large number of respondents to be utilised was the net present value method, being 42.86% of the total (twelve respondents). The active market method was proposed to be utilised by 10.71% of respondents (three respondents).

Table 3 Measurement Methods Proposed Under AASB 141

Measurement Method	Number	Responses %
Market price in an active market	3	10.71
Most recent market transaction price	4	14.29
Market prices for similar or related assets	2	7.14
Net present value of expected cash flows	12	42.86
Cost	2	7.14
Independent Valuation	3	10.71
Directors' Valuation	2	7.14
Total	28	100.00

A chi-square goodness of fit test was conducted to examine whether a significant difference existed between the measurement methods proposed to be used and the measurement methods that were expected to be used. It had been expected that the active market method

would not be utilised by respondents. The result provided a chi-square result of 4.148 significant at the .05 level. The result suggests that there are significant differences between the measurement methods proposed to be used and the expected number of firms applying the active market method. Proposition 5 is found not to be supported. It would appear from this result that while a mixture of measurement methods will be used, the active market method will be utilised by some firms.

6.0 Discussion and Conclusion

There were a number of benefits expected to flow from the adoption of an accounting standard in Australia that regulated SGARAs. The standard was expected to foster consistent valuation practices and enhance the comparability of financial reporting in industries in which SGARAs are important through the use of prescribed accounting measurement methods for SGARAs.

In this study, it was expected that firms would not utilise the net market value (subsequently 'active market value' under AASB 141) method due to the non-existence of active and liquid markets or simply because firms prefer not to use this method of measurement (Dowling and Godfrey 2001). Whilst it was found that a variety of measurement methods were used in practise in accounting for SGARAs, the net market value method was used by a small number of firms (14.63%) to value SGARAs. In fact firms, while utilising a variety of methods, identified the net present value method to be the preferred option. It was interesting to note that the percentage of use of the net market value method remained the same between groups when the firms were divided into groups that had and had not implemented the standard. There does not appear to be any substantial impact of a prescribed accounting method under AASB 1037. Firms that have applied the standard were not utilising this accounting method any more than those firms that had not applied the standard. Therefore, consistency in measurement methods does not appear to have been achieved by the introduction of the net market value method under AASB 1037. Whilst consistency in measurement methods was not found, consistency in the application of a particular measurement method over time has been achieved. The same measurement method has been applied by 97% of firms responding since implementation of the standard. It was also found that consistency in using particular measurement methods has been achieved for certain SGARA types in the wine and timber industry groups. In the timber industry 52% of respondents indicated a preference for the net present value measurement method while results were more varied for the wine industry. A total of 29% of respondents indicated a preference for the cost method, and 23% for the net present value method. By applying measurement methods consistently over time and by certain SGARA types, this does allow for a certain level of comparability to be achieved.

The results of the study suggested that the development of information systems does not have any bearing on the measurement method adopted for SGARAs by firms that have applied AASB 1037. Comparability and consistency would appear to be independent of the approach taken to information system development or sophistication.

In examining the international standard AASB 141, it was found that firms expected to utilise a number of different methods in applying the standard with only a small percentage

using the active market method, the method prescribed under the standard. With the introduction of this standard, therefore, it would appear that consistency in measurement methods may not be achieved. Further research is required though at this point. However, it may be too early to know the true effects of AASB 141 with the standard only having been implemented from 01 January 2005.

In summation, has consistency and comparability been achieved with the introduction of a prescribed accounting standard and recommended measurement method? It does not appear that consistency in measurement methods has been achieved. However, consistency in methods over time and consistency in type of measurement method for certain SGARA types does appear to have been achieved which does allow for comparability to be achieved to some degree.

Limitations

There were three main limitations to this research – one being, whilst a useable response rate of 30.83% to the mail survey is acceptable the sample itself was quite small. Support by additional interview work would complement this work and make the results more conclusive (or otherwise). A further restriction of this study was the reliance on an international standard that has only been introduced from 01 January 2005.

The third limitation was the confinement to two industries within Australia, being the wine and the forestry industries. As individual industries have their own issues and idiosyncrasies, it would be difficult to extrapolate the results from this study across all industries within Australia.

Future Research Opportunities

As this study was an exploratory study, there are a number of directions future research could take. Future research could examine the impact of moving to the international standard, AASB 141, and what effect this has had on the areas of comparability and consistency. Whilst this study focused on the wine industry and forestry industry, future research could also examine other major industries affected by the SGARA (biological assets) standard to examine whether similar results are obtained.

With the acceptance of international standards by over seventy countries, investigations could be conducted to examine the measurement methods utilised in other countries and across different industries in relation to the biological assets standard as this standard becomes more widely applicable.

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